Listing of Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 1 - 68 (cancelled)

69. (Currently Amended) A method of generating a kinematic model of a patient's joint using a computer system, the method comprising:

obtaining from a first source electronic image data of the patient's joint that includes both normal and diseased tissue, the data comprising at least one of volume~~ofvolume~~, area, thickness, shape, curvature, geometry, biochemical contents, signal intensity and relaxation time of said normal and/or diseased tissue;

obtaining from a second source electronic biomechanical data derived from the patient, wherein the biomechanical data comprises data concerning relative motion of the joint; and

generating from the image data and biomechanical data an electronic kinematic model of the patient's joint.

70. (Previously Presented) The method of claim 69, wherein biomechanical data further includes static loading alignment.

71. (Previously Presented) The method of claim 69, wherein biomechanical data further includes contact area or alignment during joint motion.

72. (Previously Presented) The method of claim 69, wherein biomechanical data further includes contact area or alignment during gait.

73 - 74. (Cancelled)

75. (Previously Presented) The method of claim 69, further comprising determining at least one axis associated with a femoral or a tibial coordinate system including one of a medial-lateral axis, an inferior-superior axis, and an anterior-posterior axis.

76. (Previously Presented) The method of claim 69, further comprising displaying the kinematic model.

77. (Previously Presented) The method of claim 69, further comprising providing a therapy based on said kinematic model.

78-79. (Cancelled)

80. (Currently Amended) A method of generating a kinematic model of a patient's joint using a computer system, the method comprising:

obtaining from a first source electronic image data of a joint that includes information comprising at least one of volume~~of volume~~, area, thickness, shape, curvature, geometry, biochemical contents, signal intensity and relaxation time of said normal and/or diseased tissue;

obtaining from a second source biomechanical data associated with the joint; and

creating an electronic kinematic model of the joint based on the image data and on the biomechanical data, wherein the model includes a contact area between two components of the joint.

81. (Previously Presented) The method of claim 80, wherein biomechanical data further includes static loading alignment.

82. (Previously Presented) The method of claim 80, wherein biomechanical data includes contact area or alignment during joint motion.

83. (Previously Presented) The method of claim 80, wherein biomechanical data includes contact area or alignment during gait.

84. (Previously Presented) The method of claim 80, wherein the biomechanical data further includes determining at least one axis associated with the joint.

85. (Previously Presented) The method of claim 80, further comprising determining at least one axis associated with a femoral or tibial condyle coordinate system including one of a medial-lateral axis, an inferior-superior axis, and an anterior-posterior axis.

86. (Previously Presented) The method of claim 80, further comprising displaying said kinematic model.

87. (Previously Presented) The method of claim 80, further comprising providing a therapy based on the kinematic model.

88. (Previously Presented) The method of claim 69, wherein relative motion is derived from a database.

89. (Previously Presented) The method of claim 88, wherein the database includes a collection of movement patterns for human joints.

90. (Previously Presented) The method of claim 89, wherein the movement patterns are organized or can be accessed by reference to characteristic including at least one of type of joint, gender, age, height, weight, bone size, type of movement and distance of movement.

91. (Previously Presented) The method of claim 69, wherein relative motion is derived using gait analysis.

92. (Previously Presented) The method of claim 91, wherein gait analysis is used to derive patient specific movement patterns.

93. (Cancelled)

94. (Previously Presented) The method of claim 69, wherein biomechanical data further includes axis alignment.

95. (Previously Presented) The method of claim 69, wherein biomechanical data further includes moments and forces between bones.

96. (Previously Presented) The method of claim 69, wherein biomechanical data includes moments and forces between cartilages.

97. (Previously Presented) The method of claim 69, wherein biomechanical data further includes the rotation and translation of a femur with respect to a tibia.

98. (Previously Presented) The method of claim 69, wherein biomechanical data further includes loading conditions assessed based on anatomical features of each individual patient.

99. (Cancelled)

100. (Previously Presented) The method of claim 69, wherein at least some of the biomechanical data is determined using an optimization calculation.

101. (Previously Presented) The method of claim 80, wherein biomechanical data includes static loading alignment.

102. (Previously Presented) The method of claim 80, wherein biomechanical data includes contact area or alignment during joint motion.

103. (Previously Presented) The method of claim 80, wherein biomechanical data includes contact area or alignment during gait.

104. (Previously Presented) The method of claim 80, wherein determining biomechanical data includes determining at least one axis associated with the joint.

105. (Previously Presented) The method of claim 80, wherein determining biomechanical data further includes determining at least one axis associated with a femoral or tibial condyle coordinate system including one of a medial-lateral axis, an inferior-superior axis, and an anterior-posterior axis.

106. (Previously Presented) The method of claim 80, further comprising simultaneous displaying said information and biomechanical data.

107. (Previously Presented) The method of claim 80, further comprising providing a therapy based on said information or biomechanical data.

108. (Previously Presented) The method of claim 80, wherein dynamic motion is derived from a database.

109. (Previously Presented) The method of claim 108, wherein the database includes a collection of movement patterns for human joints.

110. (Previously Presented) The method of claim 109, wherein the movement patterns are organized or can be accessed by reference to characteristic including at least one of type of joint, gender, age, height, weight, bone size, type of movement and distance of movement.

111. (Previously Presented) The method of claim 80, wherein dynamic motion is derived using gait analysis.

112. (Previously Presented) The method of claim 111, wherein gait analysis is used to derive patient specific movement patterns.

113. (Previously Presented) The method of claim 80, wherein diagnosing a human with a joint disease further comprises merging the image data and the biomechanical data.

114. (Previously Presented) The method of claim 80, wherein biomechanical data includes determining axis alignment.

115. (Previously Presented) The method of claim 80, wherein biomechanical data includes determining moments and forces between bones.

116. (Previously Presented) The method of claim 80, wherein biomechanical data includes determining moments and forces between cartilages.

117. (Previously Presented) The method of claim 80, wherein biomechanical data includes determining the rotation and translation of the femur with respect to the tibia.

118. (Previously Presented) The method of claim 80, wherein biomechanical data includes loading conditions assessed based on anatomical features of each individual patient.

119. (Cancelled)

120. (Previously Presented) The method of claim 80, wherein at least some of the biomechanical data is determined using an optimization calculation.